BY ORDER OF THE COMMANDER AIR EDUCATION AND TRAINING COMMAND

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Flying Operations

T-38 AND AT-38 OPERATIONS PROCEDURES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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AFI 11-2T-AT-38, Volume 3, 5 August 1999, is supplemented as follows:

NOTES:

1. Information contained herein applies to all AETC units. These units may supplement this instruction. Units will coordinate their supplements to this instruction with HQ AETC/DOFV before publication and forward one copy to HQ AETC/DOFV after publication. Submit suggested improvements to this instruction on AF Form 847, **Recommendation for Change of Publication**, through stan/eval channels, to HQ AETC/DOF, 1 F Street Suite 2, Randolph AFB TX 78150-4325. Unless otherwise specified in this supplement, HQ AETC/DO is the waiver authority. Send waiver requests to this supplement through stan/eval channels to HQ AETC/DO. (Waivers to supplemental guidance will be handled by the operations group (OG) commander of the unit that generated the supplement.)
2. Maintain and dispose of records created as a result of processes prescribed in this publication in accordance with AFMAN 37-139, *Records Disposition Schedule.*

3.2.5. (Added) Aircrews should use extreme caution when stowing items in the rear cockpit. If it is necessary to place items on or near the rear cockpit breaker panels, they should not exceed 8 inches in height to prevent interference with the balance weight arm. After closing the canopy with items stored near the rear cockpit circuit breaker panels, aircrew should visually confirm clearance exists between the balance weight arm and the stowed object. When the balance weight arm is fully closed, the bottom of the arm is 10 inches above the rear cockpit breaker panels.

3.2.6. (Added) For night sorties, the aircraft commander will ensure at least one operative flashlight is available in each occupied cockpit.

3.2.7. (Added) G-suits are required for all sorties except instrument or navigation.

3.3. Ground and taxi operations will be conducted in accordance with AFI 11-218, *Aircraft Operation and Movement on the Ground.*

3.6. During engine runup, the crewmember not in control of the aircraft will guard and be ready to assume control of the brakes in case of rudder pedal rod end failure.

3.6.1. Rolling takeoffs may be accomplished during daylight hours only.

3.6.7. (Added) The go/no-go speed (for operations with or without a BAK-15) is as follows (paragraphs **3.6.7.1.** through **3.6.7.2.2.**): (***NOTE:*** The BAK-15 is the only barrier suitable for stopping a T-38 or AT-38 with a pylon, pod, or suspension unit [SUU]. The MA1A is suitable only for clean T-38 or AT-38 aircraft.)

3.6.7.1. Operations With a BAK-15. Takeoffs will be accomplished on tower frequency. The barrier will be in the lowered position and will be raised only when the pilot calls for it. (***EXCEPTION:*** The barrier will be in the raised position for AT-38 SUU Catagory III takeoffs. Pilots will ask the tower to raise the barrier prior to takeoff.) Requirements by category are as follows:

3.6.7.1.1. Category I. Use takeoff speed as go/no-go speed.

3.6.7.1.2. Category III. For decision speed (DS) less than takeoff speed, approval of the operations group commander (OG/CC) is required. After receiving approval to take off in Catagory III conditions, the squadron supervisor will brief the aircrew and the supervisor of flying (SOF) on the situation and ensure the crew has the most current data. Only a rated pilot may perform the takeoff. Use the takeoff speed as the go/no-go speed.

3.6.7.1.3. Category III. For DS greater than takeoff speed in a clean configuration, takeoffs are not authorized. With OG/CC approval, AT-38s with a jettisonable SUU may take off with a DS above takeoff speed. The BAK-15 will be in the raised position for these takeoffs. Delay rotation until approximately 150 knots indicated air speed (KIAS) and ensure the nose wheel is off the runway no later than 174 KIAS. Use the single engine takeoff speed (SETOS) as the go/no-go speed.

3.6.7.2. Operations Without a BAK-15:

3.6.7.2.1. Category I. Use the highest of adjusted refusal speed (ARS) or critical engine failure speed (CEFS) as a go/no-go speed. ***NOTE:*** Compute ARS by calculating refusal speed (RS), using runway length minus 2,000 feet.

3.6.7.2.2. Category III. Approval by the OG/CC is required. Operation during Category III without a BAK-15 is not recommended. However, if operating in Category III conditions, use DS as the go/no-go speed.

3.6.8. (Added) The minimum runway available for takeoff is 8,000 feet. The OG/CC may waive minimum runway length to 7,000 feet. Clearance to operate on runways less than 7,000 feet requires the 19 AF/DO's approval.

3.7. Use at least 50 feet of wingtip clearance for engine runup with a solo in any position.

3.7.1. Single-ship takeoff and landing data (TOLD) will be used when calculating formation takeoff data.

3.7.3.1. In AETC, do not make formation takeoffs when runway width is less than 150 feet.

3.9. Over-the-top maneuvers will not be flown in close trail formation.

3.13.4. Unless specifically stated in the exercise or maneuver description, perform all maneuvers with gear and flaps in the retracted position.

3.13.7. (Added) The following additional maneuver parameters apply:

3.13.7.1. Supersonic flight will be performed in accordance with AFI 13-201, *USAF Airspace Management*, and local supplements thereto.

3.13.7.2. Minimum altitudes are as follows:

3.13.7.2.1. For stalls or slow flight, 8,000 feet above ground level (AGL). Maximum altitude is flight level (FL) 200; minimum revolutions per minute [RPM] are 80 percent.

3.13.7.2.2. For unlimited air combat maneuvering (ACBT), 5,000 feet AGL. For all other aerobatic maneuvers, 8,000 feet AGL.

3.13.7.3. Accomplish practice nose high recoveries or instrument unusual attitudes below FL 240 and in visual meteorological conditions (VMC).

3.13.7.4. Prohibited maneuvers are as follows:

3.13.7.4.1. Practice no-flap patterns and landings with more than 2,500 pounds of fuel.

3.13.7.4.2. Practice single-engine circling approaches or overhead patterns.

3.13.7.4.3. Practice no-flap full-stop landings.

3.13.7.4.4. Practice minimum roll landings.

3.13.7.4.5. Practice in-flight engine shutdown.

3.13.7.4.6. Formation touch-and-go landings.

3.13.7.4.7. Closed and low-closed traffic patterns immediately after initial takeoff.

3.17.7. (Added) The following additional low altitude procedures apply:

3.17.7.1. Conduct low altitude training no earlier than 30 minutes after sunrise (1 hour mountainous terrain) and exit the low altitude structure no later than 30 minutes prior to sunset (1 hour mountainous terrain).

3.17.7.2. Conduct T-38 low altitude training dual.

3.17.7.3. The maximum airspeed for T-38 low-level operations is 420 knots. The maximum airspeed for AT-38 low-level operations is 450 knots.

3.18.5. (Added) The minimum altitude for flying visual flight rules (VFR) point-to-point navigation missions dictated by operational or training requirements is 3,000 feet AGL.

3.20.4. The maximum aircraft in a night formation is two. If a three-or four-ship formation takes off prior to darkness, they may remain together until the flight lead directs a splitup.

3.20.7. (Added) The following additional night operations procedures apply (paragraphs **3.20.7.1.** through **3.20.7.5.**):

3.20.7.1. Fly night overhead patterns only at the home base. (Kelly AFB is included for the 12th Flying Training Wing.)

3.20.7.2. All night landings require operational glidepath guidance (precision approach or visual glidepath guidance) as follows:

3.20.7.2.1. Unless required by a formal course syllabus or training associated with instructing that syllabus, the preferred night approach procedures (in descending order) are as follows: precision approach, nonprecision approach with an associated visual descent path indicator, VFR straight-in, and VFR rectangular pattern.

3.20.7.2.2. When available, use a visual descent path indicator to monitor glide slope position during visual approaches. Also use the instrument landing system (ILS) glide slope if available.

3.20.7.3. All descents below a minimum descent altitude (MDA) on a nonprecision approach require an operational visual approach system.

3.20.7.4. The instrument straight-in portion of a circling approach--that is, tactical air navigation (TACAN) A--is allowed. However, the straight-in approach must terminate in either a missed approach or a transition to visual approach guidance for landing; for example, visual approach slope indicator (VASI) or precision approach path indicator (PAPI).

3.20.7.5. Formation landings will not be accomplished at night.

3.22. *(UFT only)* When airborne, before moving the gear handle, the pilot flying the aircraft will make an intercockpit "gear clear" call and pause momentarily before moving the gear handle. On presolo contact sorties, the instructor pilot (IP) will acknowledge "clear" before the student moves the gear handle. On all other sorties, "gear clear" is an advisory call only.

3.23. The instrument hood must be in the retracted position for all landings and takeoffs.

3.24. Rated pilots may use 60 percent flaps on any instrument, visual, or overhead pattern; touch-and-go landing; or full-stop landing.

3.26. The maximum crosswind for single-ship touch-and-go landings is 25 knots for a dry runway.

3.30.7.3. In AETC, formation landings are prohibited when the runway width is less than 150 feet.

3.31. (Added) Extended Daylight:

3.31.1. Extended daylight is defined as the period 15 minutes prior to official sunrise to 15 minutes past official sunset. For local training only, daylight traffic operations and daylight area operations are in effect during the extended daylight period.

3.31.2. All maneuvers normally accomplished during normal daylight hours may be performed within the extended daylight window, including solo syllabus sorties. Under certain weather conditions, such as low ceiling and visibility, the SOF will decide if maneuvers are appropriate or safe during the times defined in paragraph **3.31.1.**

3.32. (Added) Bat Procedures at Randolph AFB. Approval from the home OG/CC is required to arrive or depart during periods of increased bat activity as defined in Area Planning (AP/1).

3.33. (Added) Operating in High Wind or Sea States. Units will restrict their flying operations when high winds or sea states would be hazardous to aircrew members in ejection situations. Local training flights are not permitted over land when steady state surface winds (forecast or actual) in training or operating areas exceed 35 knots. In training or operating areas, overwater training flights will not be permitted when forecast or actual wave heights exceed 10 feet or surface winds exceed 25 knots.

4.9. Do not fly in any known or reported icing condition.

4.10. (Added) Pilot Weather Categories (PWC). PWCs are designed to reduce the exposure of pilots with limited experience to the risks inherent during periods of low ceiling and visibility. **Table 4.1. (Added)**, this supplement, specifies the PWC minimums. Before assigning a lower weather category, a PWC 1 pilot must evaluate the pilot's instrument proficiency. When calculating total time for the purpose of PWC, do not include student, undergraduate flying training (UFT), or "other" flight time. Hours in an assigned aircraft may include all series or mission types of that aircraft.

Table 4.1. (Added) Pilot Weather Categories (PWC) for T-38 and AT-38 Aircrews. (See notes 1 through 7.)

ITEM	A PWC	B Minimum Flying Hour Criteria	C Takeoff and Approach Ceiling/Visibility Minimums
1	1	150 rated hours primary flight time in assigned aircraft and 600 hours total rated time or 250 rated hours in the assigned aircraft and 450 hours total rated time.	Suitable published minimums or 300 feet/1 mile (runway visual range 5,000 feet), whichever is greater.
2	2	A graduate of follow-on training (PIT or CCTS) who does not qualify for PWC 1.	Suitable published minimums or 500 feet/ 1 1/2 miles, whichever is greater.
3	3	A student enrolled in a formal follow-on training course (PIT or CCTS) after successful completion of a formal instrument evaluation in the assigned aircraft.	Suitable published minimums or 700 feet/ 2 miles, whichever is greater.

NOTES:

1. For the purposes of this table, the terms "pilot" and "aircraft commander" are synonymous. Document PWCs on the Letter of Xs.
2. Assignment of PWC 1 status is dependent on the pilot's demonstrated knowledge and performance in flight under PWC 2 operations and in aircrew training devices with low-visibility capability. The commander of the flying squadron that the pilot is assigned or attached to will certify assignment to PWC 1 by signing the Letter of Xs. File the letter in the pilot's flight training folder.
3. PWC 1 is the minimum for normal training or support missions. When overriding mission requirements dictate, OG/CCs may individually authorize highly experienced pilots to use published approach minimums. PWC 1 minimums apply to all PWC 2 pilots for approaches at the home field.
4. If an IP is on board, aircrews may use the IP's PWC.
5. If a pilot is noncurrent in instrument approaches, increase the PWC minimums by one category. The pilot may regain currency with an IP at a dual set of controls or in a chase aircraft.
6. For formation approaches, the pilot with the most restrictive PWC minimums determines the flight's category.

7. Use the approach-end runway visual image (RVR) to determine takeoff and landing criteria.

4.11. (Added) Instrument Flight Rules (IFR). In AETC, the following requirements apply to IFRs (paragraphs **4.11.1.** through **4.11.7.**):

4.11.1. For local flying operations, aircrews do not have to designate an alternate airfield if all of the following conditions exist (Air Force Flight Standards Agency [AFFSA] AETC Waiver Vol 3/99002 and Federal Aviation Agency [FAA] Exemption #49F):

4.11.1.1. Departure and destination airfields are the same.

4.11.1.2. An IP or examiner pilot is a crewmember.

4.11.1.3. Ceiling and visibility are reported and forecasted to remain above 1,500 feet and 3 miles, respectively, for estimated time plus 2 hours.

4.11.2. Takeoff minimums are specified in **Table 4.1. (Added)**(AETC), this supplement. Base the decision to launch a local sortie on the existing weather and forecast for planned landing plus 1 hour. Base the decision to launch nonlocal sorties on the existing weather at takeoff time.

4.11.3. Do not file to a destination unless the ceiling and visibility for the estimated time of arrival (ETA), plus or minus 1 hour, is at or above the appropriate PWC or suitable published minimums, whichever is greater. See **Table 4.1. (Added)**(AETC), this supplement.

4.11.4. Weather requirements for an alternate requiring radar on the only suitable approach are the same as for an alternate without a published approach procedure.

4.11.5. Do not commence a penetration, en route descent, or approach unless existing ceiling and visibility meet the requirements of **Table 4.1. (Added)**(AETC), this supplement. During actual instrument meteorological conditions (IMC), a precision approach monitored by surveillance radar is the preferred approach. (This does not prevent instrument practice for other types of approaches if the ceiling and visibility are at or above minimums for the approach being flown.)

4.11.6. After commencing a penetration or approach, if weather is reported below the required PWC or published minimums (ceiling or visibility), the pilot may continue the approach to the PWC or published minimums, whichever is higher. The pilot may land if the runway environment is in sight and the aircraft is in a position to make a safe landing. In all cases, the pilot will comply with the last clearance received until obtaining a revised clearance.

CAUTION

The use of PWC minimums on a precision approach (precision approach radar [PAR], instrument landing system [ILS]) may require a pilot to execute a missed approach prior to the published decision height. In these instances, upon reaching PWC minimums and making the decision not to continue the approach, the pilot should start a climb immediately while proceeding to the nonprecision missed approach point (MAP). On reaching the nonprecision MAP, the pilot should continue with the published missed approach procedure.

4.11.7. When flying instrument approaches in VMC conditions, pilots may fly down to approach minimums if the runway environment is in sight when reaching applicable PWC minimums. Pilots must acknowledge reaching PWC minimums and state their intentions to their crewmembers if continuing to published minimums.

5.2.4. (Added) Ground control intercept (GCI) or air combat maneuvering instrumentation (ACMI) is required to employ more than two AT-38 aircraft during unlimited maneuvering.

5.2.5. (Added) Only two AT-38 aircraft can be in a dissimilar air combat tactics (DACT) visual engagement.

6.6. (Added) Loft or Toss Attacks. Loft or toss attacks with live ordinance are prohibited.

6.7. (Added) Unexpended Ordnance. Aircraft with unexpended ordnance may not perform touch-and-go landings.

7.1.1. No aircraft will be accepted for flight with the low oxygen quantity light illuminated. (The OG/CC may authorize a one-time flight below 10,000 feet mean sea level [MSL].) If oxygen quantity decreases to 1 liter or less when airborne, descend to at or below 10,000 feet MSL and land as soon as practical.

7.10. Simulated emergency practice requires daylight and a ceiling/visibility of 1,500 feet 3 miles and VFR cloud clearance according to Table 7.1 of AFI 11-202, Volume 3, *General Flight Rules*.

7.10.1. Pilots current or upgrading in the aircraft may practice simulated emergency procedures according to aircraft-specific guidance. Pilots will not practice simulated emergency takeoff, approach, or landing procedures unless an IP or flight examiner has immediate access to aircraft controls except as follows:

7.10.1.1. Staff proficiency pilots flying dual may practice simulated emergency takeoff, approach, and landing procedures without an IP or flight examiner in the aircraft.

7.10.1.2. Students in Euro-NATO joint jet pilot training (ENJJPT) pilot instructor training (PIT) are authorized to practice simulated single-engine and no-flap approaches and landings on syllabus-directed team sorties.

7.10.2. Pilots will not practice takeoff emergency procedures below 500 feet AGL.

7.10.3. Practice in-flight engine shutdown is prohibited except for functional check flight (FCF) missions and formal course syllabus requirements.

7.10.5. (Added) Initiate a simulated single-engine go-around by 100 feet AGL (300 feet AGL if full flaps are used).

7.12.1.16. (Added) Split S or sliceback aerobatic maneuver entries below 18,000 feet AGL.

7.12.1.17. (Added) Lead or number three position in a four-ship formation (except the 80th Flying Training Wing).

7.12.4. (Added) When lead directs a radio change while in fingertip, each wingman will acknowledge and assume the route position unless in IMC or briefed otherwise. Return to the fingertip position after the last wingman checks in.

7.13. (Added) T-38 and AT-38 Minimum Equipment (Excluding FCFs):

7.13.1. The following equipment must be fully operational for all sorties:

7.13.1.1. TACAN.

7.13.1.2. Landing or taxi light. (Except when detrimental to safety, pilots will display landing lights during all pattern operations.)

7.13.1.3. Primary and standby attitude director indicator (ADI).

7.13.1.4. Anticollision beacon (upper or lower required for day operations).

7.13.1.5. Angle of attack (AOA) indicator or indexer.

7.13.2. Position lights are required for night sorties. T-38 aircraft are exempt from displaying position lights during daylight operations except during pattern operations minus initial takeoff.

7.13.3. A flight with an inoperable identification friend or foe (IFF) or selective identification feature (SIF) is authorized for formation sorties with a minimum of one operable IFF or SIF per element.

7.13.4. Inoperable equipment in the rear cockpit is not restrictive for solo flight.

7.13.5. The ILS must be fully operational if a planned departure or arrival is conducted in IMC and an ILS or localizer (LOC) is the only compatible instrument approach procedure (IAP). ***NOTE:*** Primary flight instruments must be operative in both cockpits for night or IMC flights when aviators performing aircrew duties occupy both cockpits. If an aircraft has a major maintenance discrepancy, only the OG/CC exercising operational control over that aircraft may approve a one-time flight.

Attachment 1

References (Added)

AFI 13-201, *USAF Airspace Management*

Abbreviations and Acronyms (Added)

AFFSA —Air Force Flight Standards Agency

ACMI —air combat maneuvering instrumentation

ADI —attitude director indicator

AOA —angle of attack

ARS —adjusted refusal speed

CCTS —Combat Crew Training School

CEFS —critical engine failure speed

DACT —dissimilar air combat tactics

DS —decision speed

ENJJPT —Euro-NATO joint jet pilot training

ETA —estimated time of arrival

FCF —functional check flight

FL —flight level

IAP —instrument approach procedure

ILS —instrument landing system

LOC —localizer

MAP —missed approach point

MDA —minimum descent altitude

OG/CC —operations group commander

PAPI —precision approach path indicator

PAR —precision approach radar

PIT —pilot instructor training

PWC —pilot weather category

RPM —revolutions per minute

RS —refusal speed

RVR —runway visual range

SETOS —single engine takeoff speed

SIF —selective identification feature

SOF —supervisor of flying

SUU —suspension unit

TOLD —takeoff and landing data

UFT —undergraduate flying training

VASI —visual approach slope indicator

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